IN THE CLAIMS:

Please cancel claims 6 and 16, without prejudice or disclaimer.

Please cancel claims 22-31, without prejudice, as drawn to a non-elected invention.

Please substitute the following amended claims for the corresponding original claims. A marked copy of the claim amendments is attached hereto.

1. (amended) A method of etching a silicon-containing material on a substrate, the method comprising:

placing the substrate in a process chamber; and

providing in the process chamber, an energized gas formed by coupling RF or microwave energy to a process gas comprising fluorine-containing etching gas, chlorine-containing etching gas and sidewall-passivation gas, the sidewall-passivation gas being a gas other than the fluorine-containing etching gas, wherein the volumetric flow ratio of the fluorine-containing etching gas to the chlorine-containing etching gas is from about 2:1 to about 8:1.

2. (amended) A method according to claim 1 wherein the silicon-containing material on the substrate comprises regions having different compositions, and wherein the volumetric flow ratio of the fluorine-containing etching gas, chlorine-containing etching gas, and sidewall-passivation gas is selected to etch the regions having different compositions at substantially similar etch rates.

7. (amended) A method according to claim 1 wherein the fluorine-

8. (amended) A method according to claim 1 wherein the chlorine-containing etching gas comprises one or more of Cl_2 or HCl.

10. (amended) A method according to claim 9 wherein the volumetric flow ratio of the combined volumetric flow rate of the fluorine-containing and chlorine-containing etching gas to the volumetric flow rate of the sidewall-passivation gas is from 1:1 to about 10:1.

11. (amended) A method according to claim 1 wherein the process gas is absent HBr, Br_2 or CH_3Br.

12. (amended) A method according to claim 11 further comprising a second etch step in which an energized gas formed from a second process gas comprising HBr is provided in the process chamber.

13. (amended) A method according to claim 12 wherein the second process gas further comprises one or more of Cl_2, He-O_2 and CF_4.

14. (amended) A method of etching a substrate in a process chamber while simultaneously cleaning surfaces in the process chamber, the method comprising:

placing the substrate in the process chamber, the substrate comprising a silicon-containing material having a plurality of dopant concentrations or dopant types; and

providing in the process chamber, an energized process gas formed by coupling RF or microwave energy to a process gas comprising fluorine-containing gas, chlorine-containing gas and sidewall-passivation gas, the volumetric flow ratio of the fluorine-containing gas to the chlorine-containing gas being from about 2:1 to about 8:1,

material are etched at substantially similar rates.

15. (amended) A method according to claim 14 wherein the volumetric flow ratio of the fluorine containing gas, chlorine-containing gas and sidewall-passivation gas, is selected to etch the plurality of dopant concentrations or dopant types in the silicon-containing material at etch rates that vary by less than about 5%.

18. (amended) A method according to claim 14 wherein the volumetric flow ratio of the combined volumetric flow rate of the fluorine-containing and chlorine-containing etching gas to the volumetric flow rate of the sidewall-passivation gas is from about 1:1 to about 10:1.

19. (amended) A method according to claim 18 wherein the process gas is absent HBr, Br_2 or CH_3Br.

20. (amended) A method according to claim 19 further comprising a second etch step in which an energized gas formed from a second process gas comprising HBr is provided in the process chamber.

21. (amended) A method according to claim 20 wherein the second [energized] process gas further comprises one or more of Cl_2, He-O_2 and CF_4.

32. (amended) A method of etching a silicon-containing material on a substrate, the method comprising:

placing the substrate in a process chamber;

in a first etching stage, providing in the process chamber, an energized gas formed from a first process gas comprising fluorine-containing etching gas, chlorine-containing etching gas and sidewall-passivation gas, the sidewall-passivation gas being a gas other than the fluorine-containing etching gas, the first process gas being

in a second etching stage, providing in the process chamber, an energized gas formed from a second process gas comprising HBr, Br_2 or CH_3Br

33. (amended) A method according to claim 32 wherein the silicon-containing material on the substrate comprises regions having different compositions, and wherein the first process gas comprises a volumetric flow ratio of fluorine-containing etching gas, chlorine-containing etching gas and sidewall-passivation gas that is selected to etch the regions having different compositions at substantially similar etch rates.

37. (amended) A method according to claim 32 wherein the first process gas comprises a volumetric flow ratio of fluorine-containing etching gas to chlorine-containing etching gas that is from about 2:1 to about 8:1.

38. (amended) A method according to claim 32 wherein the fluorine-containing etching gas comprises one or more of NF_3, CF_4 or SF_6.

39. (amended) A method according to claim 32 wherein the chlorine-containing etching gas comprises one or more of Cl_2 or HCl.

41. (amended) A method according to claim 32 wherein the volumetric flow ratio of the combined volumetric flow rate of the fluorine-containing and chlorine-containing etching gas to the volumetric flow rate of the sidewall-passivation gas is from 1:1 to about 10:1.

42. (amended) A method according to claim 32 wherein the second process gas comprises HBr.

43. (amended) A method according to claim 42 wherein the second process gas further comprises one or more of Cl_2, He-O_2 and CF_4.

Please add the following new claims.

44. (new) A method of etching a substrate comprising a silicon-containing material having a plurality of dopant concentrations or dopant types, the method comprising:

placing the substrate in a process chamber;

in a first etch step, providing in the process chamber, an energized gas formed from a first process gas comprising fluorine-containing gas, chlorine-containing gas and sidewall-passivation gas, the volumetric flow ratio of the combined volumetric flow rate of the fluorine-containing and chlorine-containing gas to the volumetric flow rate of the sidewall-passivation gas being from about 1:1 to about 10:1, wherein the volumetric flow ratio is selected such that the plurality of dopant concentrations or dopant types in the silicon-containing material are etched at etch rates that vary by less than about 5%; and

in a second etch step, providing in the process chamber, an energized gas formed from a second process gas comprising HBr.

45. (new) A method according to claim 44 comprising at least one of the following characteristics (i) the fluorine-containing gas comprises one or more of NF_3, CF_4, or SF_6, (ii) the chlorine-containing gas comprises one or more of Cl_2 or HCl, or (iii) the sidewall-passivation gas comprises one or more of nitrogen, hydrogen or carbon monoxide.

46. (new) A method according to claim 44 wherein the second process gas further comprises one or more of Cl_2, $He\text{-}O_2$ and CF_4.

47. (new) A method of etching a substrate comprising a silicon-containing material having a plurality of dopant concentrations or dopant types, the method comprising:

placing the substrate in a process chamber;

in a first etching stage, providing in the process chamber, an

gas, a chlorine-containing gas and a sidewall-passivation gas in a volumetric flow ratio

selected to etch the plurality of dopant concentrations or dopant types at etch rates that vary by less than about 5%; and

in a second etching stage, providing in the process chamber, an energized gas formed from a second process gas comprising HBr, Br_2 or CH_3Br.

48. (new) A method according to claim 47 comprising at least one of the following characteristics (i) the fluorine-containing gas comprises one or more of NF_3, CF_4 or SF_6, (ii) the chlorine-containing gas comprises one or more of Cl_2 or HCl, or (iii) the sidewall-passivation gas comprises one or more of nitrogen, hydrogen or carbon monoxide.

49. (new) A method according to claim 47 wherein the second process gas further comprises one or more of Cl_2, He-O_2 and CF_4.

50. (new) A substrate etching method comprising:

placing the substrate in a process chamber; and

providing in the process chamber, an energized gas formed from a process gas comprising CF_4, chlorine-containing gas and sidewall-passivation gas.

51. (new) A method according to claim 50 wherein the substrate comprises a silicon-containing material comprising a plurality of dopant concentrations or dopant types, and wherein the volumetric flow ratio of the CF_4, chlorine-containing gas, and sidewall-passivation gas is selected to etch the plurality of dopant concentrations or dopant types at etch rates that vary by less than about 5%.

52. (new) A method according to claim 50 wherein the volumetric flow ratio of the fluorine-containing gas to the chlorine-containing gas is from about 2:1 to about 8:1.

53. (new) A method according to claim 50 wherein the volumetric flow ratio of the combined volumetric flow rate of the CF_4 and chlorine-containing gas to the volumetric flow rate of the sidewall-passivation gas is from 1:1 to about 10:1.

54. (new) A method according to claim 50 comprising at least one of the following characteristics (i) the chlorine-containing gas comprises one or more of Cl_2 or HCl or (ii) the sidewall-passivation gas comprises one or more of nitrogen, hydrogen or carbon monoxide.

55. (new) A method according to claim 50 further comprising a second etch step in which an energized gas formed from a second process gas comprising HBr is provided in the process chamber.

56. (new) A substrate etching method comprising:

placing the substrate in a process chamber; and

providing in the process chamber, an energized gas formed by coupling RF or microwave energy to a process gas comprising fluorine-containing etching gas, chlorine containing etching gas comprising one or more of Cl_2 and HCl, and sidewall-passivation gas comprising a gas other than the fluorine-containing etching gas.

57. (new) A method according to claim 56 wherein the substrate comprises a silicon-containing material comprising a plurality of dopant concentrations or dopant types, and wherein the volumetric flow ratio of the fluorine-containing etching gas, chlorine-containing etching gas, and sidewall-passivation gas is selected to etch the plurality of dopant concentrations or dopant types at etch rates that vary by less than about 5%.

58. (new) A method according to claim 56 wherein the volumetric flow

about 2:1 to about 8:1.

59. (new) A method according to claim 56 wherein the volumetric flow ratio of the combined volumetric flow rate of the fluorine-containing and chlorine-containing etching gas to the volumetric flow rate of the sidewall-passivation gas is from 1:1 to about 10:1.

60. (new) A method according to claim 56 comprising at least one of the following characteristics (i) the fluorine-containing etching gas comprises one or more of NF_3, CF_4 or SF_6, or (ii) the sidewall-passivation gas comprises one or more of nitrogen, hydrogen or carbon monoxide.

61. (new) A method according to claim 56 further comprising a second etch step in which an energized gas formed from a second process gas comprising HBr is provided in the process chamber.

62. (new) A substrate etching method comprising:

placing the substrate in a process chamber; and

providing in the process chamber, an energized gas formed from a process gas comprising CF_4, Cl_2 and N_2.

63. (new) A method according to claim 62 wherein the substrate comprises a silicon-containing material comprising a plurality of dopant concentrations or dopant types, and wherein the volumetric flow ratio of CF_4, Cl_2 and N_2 is selected to etch the plurality of dopant concentrations or dopant types at etch rates that vary by less than about 5%.

64. (new) A method according to claim 62 wherein the volumetric flow ratio of CF_4 to Cl_2 is from about 2:1 to about 8:1.

65. (new) A method according to claim 62 wherein the volumetric flow ratio of the combined volumetric flow rate of CF_4 and Cl_2 to the volumetric flow rate of N_2 is from 1:1 to about 10:1.

66. (new) A method according to claim 62 further comprising a second etch step in which an energized gas formed from a second process gas comprising HBr is provided in the process chamber.

67. (new) A substrate etching method comprising:

placing the substrate in a process chamber; and

providing in the process chamber, an energized gas formed from a process gas consisting essentially of CF_4, Cl_2 and N_2.

68. (new) A method according to claim 67 wherein the substrate comprises a silicon-containing material comprising a plurality of dopant concentrations or dopant types, and wherein the volumetric flow ratio of CF_4, Cl_2 and N_2 is selected to etch the plurality of dopant concentrations or dopant types at etch rates that vary by less than about 5%.

69. (new) A method according to claim 67 wherein the volumetric flow ratio of CF_4 to Cl_2 is from about 2:1 to about 8:1.

70. (new) A method according to claim 67 wherein the volumetric flow ratio of the combined volumetric flow rate of CF_4 and Cl_2 to the volumetric flow rate of N_2 is from 1:1 to about 10:1.

71. (new) A method according to claim 67 further comprising a second

provided in the process chamber.